

WHAT IS CLAIMED IS:

1. A gold-based composition on a support based on at least one cerium oxide, characterized in that its  
5 halogen content expressed by the halogen/gold molar ratio is equal to or lower than 0.04 and in that the gold is present in the form of particles equal to or lower than 10 nm in size.
- 10 2. The composition as claimed in claim 1, characterized in that its halogen content is equal to or lower than 0.025 and more particularly equal to or lower than 0.01.
- 15 3. The composition as claimed in either of the preceding claims, characterized in that the gold is present in the form of particles equal to or lower than 3 nm in size.
- 20 4. The composition as claimed in one of the preceding claims, characterized in that the halogen is chlorine.
5. The composition as claimed in one of the preceding claims, characterized in that the gold content is equal  
25 to or lower than 5%, more particularly equal to or lower than 1%.
6. The composition as claimed in one of the preceding claims, characterized in that the support is based on a  
30 cerium oxide and on a zirconium oxide, more particularly in a cerium/zirconium atomic proportion of at least 1.
7. The composition as claimed in one of the preceding  
35 claims, characterized in that the support is based on a cerium oxide and on a zirconium oxide and on at least one oxide chosen from scandium oxide and oxides of rare earth elements other than cerium.

8. The composition as claimed in one of claims 1 to 5, characterized in that the support is based on a cerium oxide and on a praseodymium oxide; or on a cerium oxide and on at least one oxide of another element chosen from bismuth and tin; or based on a cerium oxide and on titanium oxide.

9. The composition as claimed in one of the preceding claims, characterized in that it furthermore comprises at least one other metal element selected from silver, platinum, palladium and copper.

10. The composition as claimed in claim 9, characterized in that the other abovementioned metal element is present in a quantity equal to or lower than 400%, more particularly between 5% and 50%, compared with the gold.

11. A method for preparing a composition as claimed in one of the preceding claims, characterized in that it comprises the following steps:

- a compound based on cerium oxide is contacted with a gold-halide-based compound and, if applicable, a compound based on silver, platinum, palladium or copper, forming a suspension of these compounds, the pH of the medium thereby formed being fixed at a value of at least 8;
- the solid is separated from the reaction medium;
- the solid is washed with a basic solution.

12. The method as claimed in claim 11, characterized in that the pH of the medium formed is maintained at the value of at least 8 during the formation of the suspension of the compound based on cerium oxide and of the gold-halide-based compound and, optionally, of the compound based on silver, platinum, palladium or copper, by the addition of a basic compound.

13. The method as claimed in either of claims 11 and 12, characterized in that the solid obtained is washed with a basic solution with a pH of at least 8, preferably of at least 9.

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14. A method for preparing a composition as claimed in one of claims 1 to 10, characterized in that it comprises the following steps:

- gold and, if applicable, silver, platinum, palladium
- 10 or copper are deposited on a compound based on cerium oxide by impregnation or by ion exchange;
- the solid issuing from the preceding step is washed with a basic solution with a pH of at least 10.

15 15. The method as claimed in one of claims 11 to 14, characterized in that the solid obtained, before or after washing, is subjected to a reducing treatment.

16. The method as claimed in claim 15, characterized  
20 in that the reducing treatment takes place with a reducing gas at a temperature not higher than 200°C, preferably not higher than 180°C.

17. The method as claimed in one of claims 11 to 16,  
25 characterized in that the solid obtained after washing and optionally after the reducing treatment is subjected to calcination at a temperature not higher than 250°C.

30 18. A method for oxidizing carbon monoxide, characterized in that a composition as claimed in one of claims 1 to 10 or a composition obtained by the method as claimed in one of claims 11 to 17 is used as catalyst.

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19. The method as claimed in claim 18, characterized in that it is employed for the treatment of a tobacco smoke, in the water gas shift reaction, in the treatment of reforming gases (PROX).

20. A method for purifying air, this air containing at least one compound of the type carbon monoxide, ethylene, aldehyde, amine, mercaptan, ozone, of the  
5 type of volatile organic compounds or atmospheric pollutants and of the type of malodorous compounds, characterized in that the air is contacted with a composition as claimed in one of claims 1 to 10 or a composition obtained by the method as claimed in one of  
10 claims 11 to 17.

21. A cigarette filter, characterized in that it contains a composition as claimed in one of claims 1 to 10 or a composition obtained by the method as claimed  
15 in one of claims 11 to 17.